IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Art Unit: 2123

Examiner: J. Proctor

Applicant(s): J. G. Walacavage et al.

Serial No.: 09/965,905

Filing Date: September 28, 2001

For: METHOD OF PART FLOW MODEL FOR PROGRAMMABLE LOGIC CONTROLLER LOGICAL VERIFICATION SYSTEM

REPLY BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

This Reply Brief is directed to new points of argument raised in the Examiner's Answer dated July 14, 2008 for the above-identified application. On page 8 of the Examiner's Answer, the Examiner argues that the Erickson reference expressly discloses the PLC logical verification system dynamically interacting through input and output with the simulation model to verify a PLC code by stating "To verify the PLC logic using simulation, a model of the physical system must be developed; however, the timing of some events would be generated by the PLC" and by stating "A second application of linking simulation and animation to shop-floor control is emulation and the status of the manufacturing system is updated in real time as the simulation language uses the shop-floor interfaces to detect changes in the system as processes are completed or new jobs arrive". Further, on page 10 of the Examiner's Answer, the Examiner argues that Erickson implicitly discloses selecting a part generator and generating a part with the

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part generator by providing the disclosure of part locations in the manufacturing line, especially in conjunction with disclosure such as "A second application of linking simulation and animation to shop-floor control is emulation. Rather than testing logic of individual PLCs, emulation graphically depicts the status of the manufacturing system. This status is updated in real time as the simulation language uses the shop-floor interfaces to detect changes in the system as processes are completed or new jobs arrive." In addition, on page 12 of the Examiner's Answer, the Examiner argues that it would be impossible to disclose animation on a computer display without also inherently disclosing a change of colors, because it is only through assigning colors can a computer display be useful and Erickson discloses viewing a flow of the part through the manufacturing line by a change of color at any of the part locations.

Appellants respectfully disagree with the Examiner as to the above arguments. As to the first argument, the Examiner argues that the Erickson reference expressly discloses the PLC logical verification system dynamically interacting through input and output with the simulation model to verify a PLC code by stating "To verify the PLC logic using simulation, a model of the physical system must be developed; however, the timing of some events would be generated by the PLC" and by stating "A second application of linking simulation and animation to shop-floor control is emulation and the status of the manufacturing system is updated in real time as the simulation language uses the shop-floor interfaces to detect changes in the system as processes are completed or new jobs arrive". There is no factual basis or express disclosure in the reference relied upon which supports the Examiner's argument.

Erickson et al. merely discloses linking shop-floor hardware such as programmable controllers directly to a discrete-event simulation model or a graphical animation using a system emulator. Erickson et al. does not expressly disclose the limitation of playing a simulation model by a PLC logical verification system on a computer and viewing a flow of a part through a manufacturing line by a user, wherein the PLC logical verification system

dynamically interacting through input and output with the simulation model to verify a PLC code of the manufacturing line. In Erickson et al., there is no PLC logical verification system and the simulation model is linked directly with one or more hardware PLCs to test the control logic of the PLC. Also in Erickson et al., one or more hardware PLCs are linked with a system emulator for graphical animation of the manufacturing shop floor. In the present invention, the PLC logical verification system is not a software representation of a physical device, but a software tool that allows dynamic interaction directly with a simulation model to test PLC logic by having an input and output exchange similar to input/output control logic to validate that the logic is delivering what is intended. In Erickson et al., the emulator does not allow dynamic interaction directly with a simulation model to test PLC logic to verify a PLC code of the manufacturing line. Erickson et al. cannot anticipate the claimed invention because it does not expressly disclose the claimed limitation. Therefore, it is respectfully submitted that the Examiner has misinterpreted the Erickson et al. reference and the rejection under 35 U.S.C. § 102 is clearly wrong.

As to the second argument, the Examiner argues that Erickson implicitly discloses selecting a part generator and generating a part with the part generator by providing the disclosure of part locations in the manufacturing line, especially in conjunction with disclosure such as "A second application of linking simulation and animation to shop-floor control is emulation. Rather than testing logic of individual PLCs, emulation graphically depicts the status of the manufacturing system. This status is updated in real time as the simulation language uses the shop-floor interfaces to detect changes in the system as processes are completed or new jobs arrive." There is no factual basis or implicit disclosure in the reference relied upon which supports the Examiner's argument.

Erickson et al. merely discloses linking shop-floor hardware such as programmable controllers directly to a discrete-event simulation model or a graphical animation using a system emulator. Erickson et al. does not disclose the limitation of constructing a

simulation model of a part flow in a manufacturing line using a computer by selecting a part generator, generating a part with the part generator, and identifying part locations of the part in the manufacturing line. In Erickson et al., one or more hardware PLCs are linked with a system emulator for graphical animation of the manufacturing shop floor.

Anticipation under § 102 requires that the identical invention that is claimed was previously known to others and thus is not new. See Scripts Clinic & Research Fund v. Genentech Inc., 927 F.2d 1565, 1576, 18 U.S.P.Q.2d 1001, 1010 (Fed. Cir. 1991). A principal question in the § 102 rejection is whether the Examiner has established that the "A second application of linking simulation and animation to shop-floor control is emulation. Rather than testing logic of individual PLCs, emulation graphically depicts the status of the manufacturing system. This status is updated in real time as the simulation language uses the shop-floor interfaces to detect changes in the system as processes are completed or new jobs arrive." described in Erickson et al. is identical to the claimed method for application of a part flow for a programmable logic controller logical verification system. This the Examiner has not done.

In Erickson et al., the emulator does not allow constructing a simulation model of a part flow in a manufacturing line using a computer by selecting a part generator, generating a part with the part generator, and identifying part locations of the part in the manufacturing line. As is known in the art, an emulator represents a physical device in software. Although Erickson et al. discloses that a simulation model of the physical system must be developed, it does not implicitly disclose how that is accomplished.

The disclosure in Erickson et al. of "A second application of linking simulation and animation to shop-floor control is emulation. Rather than testing logic of individual PLCs, emulation graphically depicts the status of the manufacturing system. This status is updated in real time as the simulation language uses the shop-floor interfaces to detect changes in the system as processes are completed or new jobs arrive." does not provide a factual basis or implicit

disclosure of simulation model of a part flow in a manufacturing line using a computer by selecting a part generator, generating a part with the part generator, and identifying part locations of the part in the manufacturing line. The disclosure described in Erickson et al. is not identical to the claimed method for application of a part flow for a programmable logic controller logical verification system. Therefore, it is respectfully submitted that the Examiner has misinterpreted the Erickson et al. reference and the rejection under 35 U.S.C. § 102 is clearly wrong.

As to the third argument, the Examiner argues that it would be impossible to disclose animation on a computer display without also inherently disclosing a change of colors, because it is only through assigning colors can a computer display be useful and Erickson discloses viewing a flow of the part through the manufacturing line by a change of color at any of the part locations. Once again, there is no factual basis or inherent disclosure in the reference relied upon which supports the Examiner's argument.

Erickson et al. discloses that "A second application of linking simulation and animation to shop-floor control is emulation. Rather than testing logic of individual PLCs, emulation graphically depicts the status of the manufacturing system." However, Erickson et al. does not disclose the limitation of viewing a flow of the part through the manufacturing line by a change of color at any of the part locations by a user. While the Examiner speculates that, in a monochrome display, the animation of even a simple object requires changing the color the appropriate dots making up the overall display to reflect a moving object, the Examiner has not cited any evidence that it is well known in the art to view a flow of a part through a manufacturing line by a change of color at any of the part locations or how Erickson et al. would inherently disclose such a limitation. Thus, Erickson et al. cannot anticipate the claimed invention. Therefore, it is respectfully submitted that the Examiner has misinterpreted the Erickson et al. reference and the rejection under 35 U.S.C. § 102 is clearly wrong.

Accordingly, it is respectfully requested that the rejection of the pending claims be reversed and that the claims pending in the present application be allowed.

Respectfully submitted,

By: _____
Daniel H. Bliss
Reg. No. 32,398

BLISS McGLYNN, P.C.
2075 W. Big Beaver Road
Suite 600
Troy, Michigan 48084
(248) 649-6090

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